



# Used Oil Burning

Wisconsin Department of Natural Resources  
Waste Management Program \* PUBL-WA-104 98

P.O. Box 7921 \* Madison, WI \* 53707-7921 \* 608/266-2111

## USED OIL

Used oil is any petroleum-derived or synthetic oil that, as a result of use or management, is contaminated [s NR 590.03(49)]. Used oil includes, but is not limited to, engine, turbine and gear lubricants; hydraulic fluid, including transmission fluid; metalworking fluid, including cutting, grinding, machining, rolling, stamping, quenching and coating oils; and insulating fluid or coolant. Almost any business or public agency that maintains heavy equipment and machinery, or a fleet of vehicles, produces used oil.

Used oil is divided into three categories: on-specification used oil, off-specification used oil, and hazardous waste. Each category is determined by the contaminants the oil contains.

Oil in each category can only be burned in specific types of oil burners. Anyone burning or marketing used oil must comply with the regulations explained later in this fact sheet.

**Presumption of recycling.** It is presumed that used oil will be recycled; used oil that is disposed is not regulated as used oil, but rather is a solid waste which may be a hazardous waste. For purposes of the presumption, burning for energy recovery **does** constitute recycling.<sup>1</sup>

## WHY BURNING IS REGULATED

Used oil may contain contaminants, including chromium, cadmium, naphthalene, chlorinated hydrocarbons and benzene. Benzene is a chemical that is known to cause cancer. Oil picks up more contaminants as it moves through the lubricating, hydraulic or transformer processes in a machine.

When used oil is burned, these contaminants may be emitted into the air and inhaled. Also, the ash produced from burning used oil can be toxic.

## HAZARDOUS WASTE OR USED OIL?

Under certain circumstances, used oil may be regulated as hazardous waste. To determine whether or not this is the case, EPA has developed the concept of a *rebuttable presumption*.

The rebuttable presumption is an objective test to determine if the oil has been mixed with hazardous waste. Used oil containing greater than or equal to 1,000 ppm total halogens is presumed to have been mixed with a listed hazardous waste, and therefore is regulated as hazardous waste. Generators, transporters, processors, re-refiners, and burners must determine whether the total halogen content of used oil is greater than 1,000 ppm.

EPA's enforcement experience indicates that used oil mixed with halogen levels greater than 1,000 ppm most likely has been mixed with chlorinated hazardous waste. The rebuttable presumption applies to all used oil handlers. Despite the fact that the wording in various sections in the Federal regulations are somewhat

inconsistent,<sup>2</sup> EPA's intent is that generators must comply with all provisions of the rebuttable presumption. Wisconsin has resolved this issue by drafting ch. NR 590 with a section, s. NR 590.11, which addresses the rebuttable presumption as it applies to all handlers of used oil. Persons may rebut this presumption by demonstrating that the used oil does not contain hazardous waste by using an analytical test method. These test methods are described in EPA Publication SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods."

Used handlers need not test the used oil; they may rely on their knowledge of whether mixing has occurred.

**Exemption from hazardous waste management standards.** As a result of the rebuttable presumption and the presumption of recycling, used oil that is recycled and is not a listed hazardous waste, or mixed with a listed hazardous waste, is exempt from regulation under the Hazardous Waste Management Code.

The following materials are exempt from regulation as hazardous wastes: Used oil that is recycled and is also a hazardous waste solely because it exhibits a hazardous characteristic or meets the F500 hazardous waste listing is not subject to the requirements of chs. NR 600 to 685, but is regulated under ch. NR 590. Used oil that is recycled includes any used oil which is reused, following its original use, for any purpose, including the purpose for which the oil was originally used. Such term includes, but is not limited to, oil that is re-refined, reclaimed, burned for energy recovery, or reprocessed.<sup>3</sup>

See the Rebuttable Presumption Analysis Flow Chart for a summary of the rebuttable presumption. Used oil which does not meet this exemption is subject to all applicable hazardous waste management requirements, in particular ch. NR 665 and 40 CFR 266 Subpart H rather than the Used Oil Management Standards when burned for energy recovery unless the presumption of mixing can be successfully rebutted. Used oil that is mixed with a listed hazardous waste, or used oil that is not recycled, would not meet the above exemption.

#### **USED OIL FUEL SPECIFICATION - ON AND OFF-SPECIFICATION USED OIL**

Used oil that is not regulated as hazardous waste is considered to be either on-specification or off-specification used oil. Specifications are limits set on the amount of hazardous substances, listed below, which used oil may contain and still be burned in devices **other than** utility boilers, industrial boilers, or industrial furnaces.

EPA interprets the used oil management standards to mean that any management of on-specification used oil, prior to its being burned for energy recovery, is subject to the management standards. In addition, on specification used oil must be managed in accordance with applicable regulations from the Wisconsin Department of Commerce (DCOM) concerning its storage and burning.

<b>Table 1 - Used Oil Specification Levels<sup>a</sup></b>	
<b>Constituent/property</b>	<b>Allowable level</b>
Arsenic	5 ppm maximum.
Cadmium	2 ppm maximum.
Chromium	10 ppm maximum.
Lead	100 ppm maximum.
Flash point	100 ° F minimum.
Total halogens	4,000 ppm maximum.

**Note:** <sup>a</sup>The specification does not apply to mixtures of used oil and hazardous waste that continue to be regulated as hazardous waste (see s. NR 590.10).

To determine whether or not your used oil meets these specifications, contact a testing laboratory. It is your responsibility to determine whether or not your oil meets these specifications.

### **OFF-SPECIFICATION USED OIL**

If your used oil does not meet the above specifications, it is called off-specification used oil and can only be burned in:

- Industrial furnaces, including cement or lime kilns
- Industrial boilers
- Utility boilers

Exception: Off-specification used oil may be burned in small, private space heaters if it meets the conditions listed later in this fact sheet.

### **BURNERS OF OFF-SPECIFICATION USED OIL FOR ENERGY RECOVERY: ACCEPTABLE UNITS**

**Industrial furnaces** include cement kilns, lime kilns and blast furnaces. They are any enclosed device with a controlled flame that is an essential element of the manufacturing process. Types of industrial furnaces include the following:

- Cement, lime, aggregate, or phosphate kilns
- Coke ovens
- Blast furnaces
- Smelting, melting, and refining furnaces
- Titanium dioxide chloride process oxidation reactors
- Methane reforming furnaces
- Pulping liquor recovery furnaces
- Combination devices used in the recovery of sulfur values from spent sulfuric acid
- Halogen acid furnaces meeting certain specifications.

**Industrial boilers** are boilers that produce electricity, steam, heated or cooled air or any other gases or fluids used in manufacturing processes. A boiler that is not used for manufacturing but is physically located on the premises of a manufacturing facility is considered an industrial boiler. Industrial boilers include the following:

- Industrial boilers at a facility engaged in a manufacturing process where substances are transformed into new products by mechanical or chemical processes, and
- Utility boilers used to produce electric power, steam, heated or cooled air, or other gases or fluids for sale.

**Space Heater** generators may burn used oil on-site in used oil-fired space heaters under certain circumstances. This may even include off-specification used oil. The following restrictions apply to this practice:

- The heater burns only used oil that the owner or operator generates on the premises where the space heater is located, or used oil that is received directly from a consumer (do-it-yourselfer) used oil change. Used oil which has been collected from a consumer and aggregated by a second party is no longer consumer used oil once it is received by a third party.
- The space heater is designed to have a maximum capacity of not more than 500,000 BTUs per hour.

- The oil is burned in a room with plenty of air ventilation and the combustion gases from the heater are vented to the ambient air (outside the building in which the heater is located).
- The heater has been approved by DILHR for the burning of used oil.
- The used oil burned in the heater is not hazardous waste according to the rebuttable presumption and does not exceed the specification levels for flash point and total halogens in s. NR 590.09.

Very small quantity generators of hazardous waste (VSQGs) subject to s. NR 610.07 may mix their used oil and waste which is hazardous solely because it exhibits the ignitability characteristic, such as ignitable-only mineral spirits, provided the resultant mixture does not exhibit the ignitability characteristic in s. NR 605.08(2), for the purpose of burning the mixture in an on-site space heater provided the above requirements are met.

Used oil which fails the rebuttable presumption test of s. NR 590.11 is presumed to be hazardous waste and is subject to regulation under the Hazardous Waste Management Code, chs. NR 600 to 685. Except for the limited exemption described in the previous paragraph, generators of used oil may not mix used oil and hazardous waste without a hazardous waste treatment license.

## **MARKETING**

Anyone selling or giving used oil directly to someone who burns used oil is considered a used oil marketer and must comply with EPA marketer regulations. There are different requirements for marketing on-specification and off-specification used oil.

Anyone marketing used oil must:

1. Analyze the used oil to prove it is on-specification.
2. Keep a record of this analysis.
3. Keep an operating log of all used oil shipments.

Anyone marketing off-specification used oil must:

1. Get an EPA identification number. DNR's fact sheet "The EPA Identification Number" explains how.
2. Complete an invoice for each used oil shipment.
3. Keep records of all invoices and notification certifications signed by facilities receiving the used oil.

For more information about marketing used oil contact the EPA hotline at 800/424-9346.

## **DNR RULES FOR USED OIL BURNING**

The DNR's rules on used oil burning have largely been consolidated into ch. NR 590, Used Oil Management. In addition, the solid waste regulations require a license for transporting used oil.

**Air pollution control rules.** If the used oil you burn provides less than 30 percent of your heat and it is not a hazardous waste, you may still need to obtain an air pollution control permit from the DNR to burn it. This permit regulates how used oil may be burned, insuring that emissions that could be dangerous to human health and the environment are not released into the air.

If you are burning used oil in an industrial furnace or boiler, contact the Bureau of Air Management or your DNR Region air specialist to make sure you are not violating any air quality regulations. Failure to comply with these regulations may result in forfeitures or legal action.

If you are burning used oil in a non-industrial burner, you should also contact your DNR Region air specialist to make sure you are not violating any air quality regulations.

Make sure your burner is in good working order. This helps decrease the amount of hazardous substances emitted into the air and helps the oil burn more efficiently.

**Used Oil Contaminated with PCBs** Used oil is sometimes contaminated with PCBs (polychlorinated biphenyls). If you suspect your used oil has been contaminated with PCBs, have it tested before you burn it to determine the amount of contamination. The amount of PCB contamination determines how the used oil can be burned. The PCB rules [s NR 157.07(2)] state:

- Used oil with less than 10 parts per million PCB contamination can be burned according to used oil guidelines.
- Used oil with 10-50 parts per million PCB contamination can be burned in commercial and industrial furnaces provided the furnaces are approved by DNR.
- Used oil with over 50 parts per million PCB contamination can only be burned in an EPA-approved facility.

Failure to burn PCB contaminated used oil in accordance with DNR rules could result in penalties and legal action.

### QUESTIONS?

Call your DNR Regional waste management program (see Waste Management Program Contact List) if you have additional questions or consult the NR 600 and NR 500 series, Wisconsin Administrative Code. You may also want to check on DNR's web site at <http://dnr.wi.gov/> or contact your regional waste management program or DNR's Bureau of Cooperative Environmental Assistance at 608/267-9700 for a list of other publications that might be of interest.

The following other DNR fact sheets explaining other aspects of used oil are available by calling 608/267-9700 or your DNR Region's Waste Management Program.

- WA-233 Used Oil Management
- WA-135 Recycle Used Motor Oil Filters
- WA-101 EPA Identification Number
- Copies of Wisconsin statutes and administrative rules can be purchased from Wisconsin Department of Administration, Document Sales and Distribution, P.O. Box 7840, Madison, WI 53707-7840 or call 608/266-3358. Wisconsin State statutes and some administrative rules are also on the Revisor of Statutes Bureau's world wide web site: <http://www.legis.state.wi.us/rsb/stats.html>.

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applying the governing statutes and administrative rules to the relevant facts.

Also, this fact sheet is not intended as a substitute for the statutes and rules that apply. Rather, it is a brief summary of the topic. Please consult Wisconsin's statutes and administrative rules for detailed information.

Note: DNR provides equal opportunity in employment, programs, services and functions under an Affirmative Action Plan. This document is available in alternative format upon request. Call the Bureau of Waste Management at 608/266-2111 for information about alternative formats.

<sup>1</sup>40 CFR s. 270.10(a); s. NR 590.04(2)(c).

<sup>2</sup>40 CFR s. 279.21, 279.10(b)(1)(ii), 279.44, 279.53, and 279.63

<sup>3</sup>40 CFR s. 261.4(a)(4); s. NR 605.05(1)(q).